POKSF
11.3.18.1 V15

March 12, 2008

Mr. Michael Romero
Oregon Department of Environmental Quality
2020 SW Fourth Ave., Suite 400
Portland, OR 97201

Re: **Fire Fighting Foam Release**
Kinder Morgan – Linnton Terminal
11400 NW St. Helens Road
Linnton, Oregon
OERS 2008-0406

DELTA

Dear Mr. Romero:

As requested, Delta Environmental Consultants, Inc. (Delta), on behalf of Kinder Morgan Liquid Terminals (KMLT), has prepared this letter to summarize the actions and potential source control impacts surrounding a recent release of fire fighting foam from the KMLT Linnton Terminal into the Willamette River.

RELEASE BACKGROUND & STATUS

A new fire suppression system was recently installed at the KMLT Linnton Terminal. During a fairly significant storm event on January 31, 2008 (1.03 inches), the system was tested by charging the lines with a solution containing 3% of the fire fighting foam concentrate (see Attached Data Sheet and MSDS). During the test, foam suds were noted at several locations throughout the yard. Storm water at the time flushed the suds into the terminal's closed storm system. Storm water typically does not discharge directly from the Linnton terminal but is transferred into a temporary holding tank (batched) for testing before discharge through the primary outfall into the Willamette River. Storm water is only discharged directly into the Willamette River during rain events that overwhelm the holding capacity.

On January 31, this storm water holding tank filled to capacity with the storm water and foam solution which in turn rerouted the water mixture to a discharge from a secondary outfall directly into the Willamette River (without batching). The secondary outfall discharges into the boomed off area of the Willamette River near historical oil seeps. The approximately 20-foot elevation drop between the outfall and the River caused the solution to foam during discharge. However, the foam was contained within the boomed area and did not reach the main channel of the River. KMLT reported that after 3 hours the foam had dissipated and conditions at the river appeared normal.

Kinder Morgan then tested the water in the holding tank to ensure compliance with the Terminal's NPDES permit and on February 5, 2008 KMLT closely monitored the discharge of the temporary holding tank water containing the foam solution and storm water. After a discharge of approximately 1,500 gallons, the water began to foam, the discharge was immediately stopped. A representative sample of the water in the holding tank was collected and further analyzed for BOD to evaluate disposal options. Results show a BOD concentration of 26.3 mg/L and the Oregon Department of Environmental Quality approved land application of the remaining foam solution and storm water. KMLT started emptying the holding tank February 19, 2008 and, at a rate of 5 to 10 gallons per minute, the tank should be emptied by late March. After emptying the tank KMLT will resume normal storm water management in accordance with their NPDES permit.

The concentrate is not a RCRA-listed or characteristic waste and does not contain Extremely Hazardous Substances (EHS) subject to SARA (see attached MSDS). It is reported to be biodegradable and advertised as an environmentally responsible foam concentrate.

SOURCE CONTROL IMPACTS

The evaluation of the storm water source control consistent with the DEQ and EPA Joint Source Control Strategy JSCS guidance will not be impacted from the foam release. The final sampling event to evaluate the storm water source control was collected on January 18, 2008, before the release.

The impacted transfer lines and oil and water separator were cleaned of any residual foam solution by Terra Hydr Inc. of Portland, Oregon. KMLT reported that residual storm water and foam solution in the tank was agitated with insignificant foaming.

After emptying the batch tank of the foam solution KMLT will resume collecting and batching all storm water before discharge in accordance with the site NPDES permit. After the next rain event, KMLT will closely monitor the water in the batch tank for foaming. However, since all the transfer lines were cleaned and the residual storm water and foam solution did not produce significant foam, future NPDES sampling and testing is not expected to adversely affected by the foam release.

Should you have any questions, please do not hesitate to contact me at (503) 863-2106.

Sincerely,
DELTA CONSULTANTS

Timothy Browning
Senior Project Manager

cc: Robert Truedinger – KMLT
Greg Westling - KMLT

Attachments: Universal Plus ® Data Sheet
Universal Plus 3% / 6% MSDS

NATIONAL FOAM

DATA SHEET
#NFC410

UNIVERSAL® PLUS 3%-6% AR-AFFF Environmentally Responsible Foam Concentrate

Description

Environmentally responsible Universal Plus is the next generation in Alcohol-Resistant Aqueous Film Forming Foams (AR-AFFFs). This new formulation demonstrates National Foam's commitment to superior flexibility, firefighting performance, and environmental responsibility.

Universal Plus is used at 3% to extinguish hydrocarbon fires, and at 6% for polar-solvent (water-miscible) fires. It is suitable for use with foam compatible dry powder extinguishing agents.

Universal Plus is an AR-AFFF concentrate with a special biosynthesized polymer. This polymer is designed to fulfill two functions. The first is to form a protective membrane between the fuel and the foam as it contacts the water-miscible fuel, making extinguishment possible. The second function is to make the foam more stable and heat-resistant, resulting in better burnback resistance and sealability compared to conventional AFFFS. The unique state-of-the-art Universal Plus concentrate formulation is recognized by United States Patents 4,999,119 and 5,207,932.

Applications

Universal Plus is used in fire suppression systems and manual applications to fight the broadest range of Class B fires. Typical applications include storage tanks, loading racks, docks, process areas, warehouses, spills, etc. Universal Plus can also be used as a wetting agent in combating Class A fires.

Typical Physical Properties

Appearance	Amber-Colored Viscous Liquid
Specific Gravity @ 77°F (25°)	1.022
pH	8.2
Viscosity	2700 cps*
Freezing Point	24°F(-4°C)
Minimum usable temperature	35°F (2°C)
Maximum usable temperature	120°F (49°C)
Effects of Freeze/Thaw	No performance loss

*Brookfield #3 Spindle @ 30 rpm. Viscosity measured under different shear conditions will be different because of pseudoplastic rheology of this non-Newtonian product.

Approvals and Listings

- Underwriters Laboratories, Inc.
- Underwriters' Laboratories of Canada (ULC)
- Factory Mutual System

Universal Plus has successfully passed UL-162 7th Edition test criteria for use at 3% concentration on hydrocarbons and at 6% on polar solvents using both fresh and sea water. The UL listings include application through a variety of proportioning and foam-making devices. Consult National Foam for a complete list of these devices.

Storage and Handling

Universal Plus is ideally stored in its original shipping container or in tanks or other containers which have been designed for such foam storage. Recommended construction materials are stainless steel (Type 304L or 316), high density cross-linked polyethylene, or reinforced fiberglass polyester (isophthalic polyester resin) with a vinyl ester resin internal layer coating (50-100 mils).

Foam concentrates are subject to evaporation which accelerates when the product is exposed to air. Storage tanks should be sealed and fitted with a pressure vacuum vent to prevent free exchange of air. The recommended storage environment is within the UL-listed temperature range of 35°F to 120°F (2°C to 49°C).

It is recommended that Universal Plus not be mixed with any other type of foam concentrate in long-term storage. Such mixing could lead to chemical changes in the product and a possible reduction in or loss of its firefighting capability. Most expanded foams are compatible for side-by-side application during an incident.

Shelf Life, Inspection and Testing

The shelf life of any foam concentrate is maximized by proper storage conditions and maintenance. Factors affecting shelf life are wide temperature changes, extreme high or low temperatures, evaporation, dilution, and contamination by foreign materials. Properly stored National Foam AR-AFFF foam concentrates have been tested and shown no significant loss of firefighting performance, even after 25 years.

Annual testing of all firefighting foams is recommended by the National Fire Protection Association (NFPA). National Foam provides a Technical Service Program to conduct such tests. Contact your National Foam representative for details.

Underwriters Laboratories-Listed Type II Application Rates - Universal Plus

Fuel Group	Specific Test Fuel	Proportioning %	UL-Listed Type II ApplicationRate gpm/ft² (l/m/m²)
ALCOHOLS	Isopropyl Alcohol	6	0.13 (5.3)
ETHANOL	Ethanol	6	0.10(4.1)
METHANOL	Methanol	6	0.10 (4.1)
KETONES	Acetone	6	0.13 (5.3)
METHYL ETHYL KETONE	Methy Ethyl Ketone	6	0.10 (4.1)
MTBE	Methyl Tertiary Butyl Ether	6	0.15 (6.1)
ESTERS	Normal Butyl Acetate	6	0.10 (4.1)

Environmental and Toxicological Information

Universal Plus contains no ingredients reportable under the Superfund Amendments and Reauthorization Act (SARA) Title III, Section 313 of 40 CFR-372 or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as of July 1, 1995. Universal Plus is biodegradable. However, as with any substance, care should be taken to prevent discharge from entering ground water, surface water, or storm drains. With advance notice, Universal Plus solution can be treated by local biological sewage treatment systems. Since facilities vary widely by location, disposal or discharge of Universal Plus concentrate or foam solution should be made in accordance with federal, state and local regulations. The Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) of Universal Plus are as follows:

BOD_5 68,800 mg/kg
COD 190,000 mg/kg

Results of tests for acute oral toxicity and primary skin irritation have proved negative. Repeated skin contact will remove oils from the skin and cause dryness. Universal Plus is a primary eye irritant, and contact with the eyes should be avoided. Users are advised to wear protective equipment. If Universal Plus enters the eyes, flush them well with water and seek immediate medical attention. For further details, see the Universal Plus Material Safety Data Sheet.

Ordering Information

CONTAINER	SHIPPING WEIGHT	PART NUMBER
5-Gallon Pails (19 litres)	46 lb. (20.9 kg)	2130-5340-6
55-Gallon Drums (208 litres)	494 lb. (225.0 kg)	2130-5481-6
275-Gallon IBC Reusable Tote Tank (1041 litres)	2512 lb. (1141.8 kg)	2130-5725-6
Bulk	8.59 lb./gal.(1.03 kg/l)	2130-5001-6

Palletizing of pails and drums is available upon request.

SHIPPING CUBE

5-Gallon Pail ..... 1.13 cu. ft. (0.032 cu. m)

55-Gallon Drum ..... 11.51 cu. ft. (0.326 cu. m)

275-Gallon IBC Tote Tank .... 51.11 cu. ft. (1.1061 cu. m)

08/07 (Rev D) Printed in U.S.A. (NFC410-UP.PMD)

NATIONAL FOAM, INC.
P.O. Box 695 • Exton, PA 19341-0695 • (610) 363-1400 • Fax: (610) 524-9073
www.Kidde-Fire.com

National Foam

MATERIAL SAFETY DATA SHEET #NMS410

UNIVERSAL PLUS 3% / 6%

ALCOHOL RESISTANT AQUEOUS FILM FORMING FOAM (AR-AFFF)
Liquid Concentrate

Section 1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Product: Universal Plus 3% / 6%, Fire Fighting Foam Concentrate
Synonyms: Alcohol Resistant Aqueous Film Forming Foam (AR-AFFF)
CAS No: Mixture - No single CAS # applicable

Company Identification

Manufacturer:
National Foam, Inc.
180 Sheree Boulevard, Suite 3900
P.O. Box 695
Exton, PA 19341-0695
Emergency Phone Number (Red Alert): (610) 363-1400 (U.S.A.)
Fax Number: (610) 524-9073
www.Kidde-Fire.com

Section 2. COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS Number	% Weight
Water	7732-18-5	78-93%
Proprietary mixture of synthetic detergents	No single CAS # applicable	4-10%
(2-Methoxymethylethoxy) Propanol	34590-94-8	2-5%
Fluoroalkyl Surfactant	Confidential	0.5-2.0%
Polysaccharide	11138-66-2	0.5-2.0%

Section 3. HAZARDS IDENTIFICATION

Potential Health Effects

Inhalation
Vapors are minimal at room temperature. If product is heated or sprayed as an aerosol, airborne material may cause respiratory irritation.

Skin Contact
Contact with liquid may cause moderate irritation or dermatitis due to removal of oils from the skin.

Eye Contact
Product is an eye irritant.

Ingestion
Not a hazard in normal industrial use. Small amounts swallowed during normal handling operations are not likely to cause injury; swallowing large amounts may cause injury or irritation.

Additional Health Effects
Existing eye or skin sensitivity may be aggravated by exposure.

Carcinogenicity Information
No data available.

Section 4. FIRST AID MEASURES

Inhalation
No specific treatment is necessary since this material is not likely to be hazardous by inhalation. If exposed to excessive levels of airborne aerosol mists, remove to fresh air. Seek medical attention if effects occur.

Skin Contact
In case of skin contact, wash off in flowing water or shower. Launder clothing before reuse.

Eye Contact
In case of eye contact, flush eyes promptly with water for 15 minutes. Retract eyelids often to ensure thorough rinsing. Consult a physician if irritation persists.

Ingestion
Swallowing less than an ounce is not expected to cause significant harm. For larger amounts, do not induce vomiting. Give milk or water. Never give anything by mouth to an unconscious person. Seek medical attention.

Section 5. FIRE FIGHTING MEASURES

Flammable Properties
Flash Point: >200°F

Fire and Explosion Hazards
Avoid contact with water reactive materials, burning metals and electrically energized equipment.

Extinguishing Media
Product is an extinguishing media. Use media appropriate for surrounding materials.

Special Fire Fighting Instructions
This product will produce foam when mixed with water.

Section 6. ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)
NOTE: Review FIRE FIGHTING MEASURES and HANDLING (Personnel) sections before proceeding with clean-up. Use appropriate Personal Protective Equipment during clean-up.

Accidental Release Measures

Concentrate
Stop flow if possible. Use appropriate protective equipment during clean up. For small volume releases, collect spilled concentrate with absorbent material; place in approved container. For large volume releases, contain and collect for use where possible. Flush area with water until it no longer foams. Exercise caution, surfaces may be slippery. Prevent discharge of concentrate to waterways. Disposal should be made in accordance with federal, state and local regulations.

Foam/Foam Solution
See above. Flush with water. Prevent discharge of foam/foam solution to waterways. Do not discharge into biological sewer treatment systems without prior approval. Disposal should be made in accordance with federal, state and local regulations.

Section 7. HANDLING AND STORAGE

Handling (Personnel)
Avoid contact with eyes, skin or clothing. Avoid ingestion or inhalation. Rinse skin and eyes thoroughly in case of contact. Review HAZARDS and FIRST AID sections.

Storage
Recommended storage environment is between 35°F (2°C) and 120°F (49°C). Store product in original shipping container or tanks designed for product storage.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls
Special ventilation is not required.

Personal Protective Equipment

Respiratory
Recommended exposure limits (OSHA-PEL and ACGIH-TLV) have not been determined for this material. The need for respiratory protection should be evaluated by a qualified health specialist.

Protective Clothing
Rubber or PVC gloves recommended.

Eye Protection
Safety glasses, face shield or chemical splash goggles must be worn when possibility exists for eye contact. Contact lenses should not be worn. Eye wash facilities are recommended.

Other Hygienic Practices
Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before re-use.

Exposure Guidelines

Exposure Limits
(2-Methoxymethylethoxy) Propanol (34590-94-8)

PEL(OSHA)
100 ppm, 8 hr. TWA Skin
150 ppm, 15 min. STEL Skin

TLV (ACGIH)
100 ppm, 8 hr. TWA Skin
150 ppm, 15 min. STEL Skin

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Boiling Point:	Not applicable
Vapor Pressure:	Not applicable
Vapor Density:	Not applicable
Melting Point:	Not applicable

Evaporation Rate:	<1 (Butyl Acetate = 1.0)
Solubility in Water:	100%
pH:	8.2
Specific Gravity:	1.022 @ 25°C
Freezing Point:	24°F (-4°C)
Odor:	Mild, pleasant
Form:	Viscous liquid
Color:	Straw yellow

Section 10. STABILITY AND REACTIVITY

Chemical Stability
Stable.

Incompatibility, Materials to Avoid
Avoid use of product on burning metals, electrically-energized equipment and contact with water reactive materials.

Polymerization
Will not occur.

Section 11. TOXICOLOGICAL INFORMATION

Mammalian Toxicity

Ingestion
This material was not toxic when administered to Wistar Albino rats at an acute oral dose of 5g/kg body weight.

Eye
Animal testing indicates this material is a primary eye irritant when tested undiluted on New Zealand Albino Rabbits.

Skin
Animal testing indicates this material is not a primary skin irritant when tested undiluted on New Zealand Albino Rabbits.

Inhalation
No data available at this time.

Carcinogenic, Developmental, Reproductive, Mutagenic Effects
No data available on this material.

Section 12. ECOLOGICAL INFORMATION

Ecotoxicological Information Aquatic Toxicity
96 hr. Flow Through LC_{50} for Fathead Minnows (pimephales promelas) is reported to be greater than 1000 ppm.

Environmental Fate

BOD_5	Concentrate	68,800 mg/kg
COD	Concentrate	190,000 mg/kg

Section 13. DISPOSAL CONSIDERATIONS

Universal Plus, as sold, is not a RCRA-listed waste or hazardous waste as characterized by 40 CFR 261. However, State and local requirements for waste disposal may be more restrictive or otherwise different from Federal regulations. Therefore, applicable local and state regulatory agencies should be contacted regarding disposal of waste foam concentrate or foam/foam solution.

Concentrate
Do not discharge into biological sewer treatment systems without prior approval. Specific concerns are high BOD load and foaming tendency. Low dosage flow rate or antifoaming agents acceptable to the treatment plant may be helpful. Do not flush to waterways. Disposal should be made in accordance with federal, state and local regulations.

Foam/Foam Solution
Universal Plus foam solution can be treated by waste water treatment facilities. Discharge into biological sewer treatment facilities may be done with prior approval. Specific concerns are high BOD load. Dilution will reduce BOD and COD factors proportionately. Low dosage flow rate or antifoaming agents acceptable to the treatment plant may be helpful. Do not flush to waterways. Disposal should be made in accordance with federal, state and local regulations.

NOTE: As a service to our customers, National Foam has approvals in place with disposal facilities throughout the U.S. for waste water treatment and solidification and landfill of our foam liquid concentrates and foam solutions. If required, National Foam, Inc. can also provide information on the disposal of drums used for shipping our concentrates. Please contact National Foam's Risk Management Administrator at (610) 363-1400 for additional information.

Section 14. TRANSPORTATION INFORMATION

Shipping Informationc
Proper Shipping Name: Fire Extinguisher Charges or Compounds N.O.I., Class 70
National Motor Freight Code: 69160 Sub 0
Hazard Class: None
UN Number: None

Section 15. REGULATORY INFORMATION

U.S. Federal Regulations

Toxic Substances Control Act (TSCA)
All components of this product are listed in the TSCA inventory.

Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III

Section 302/304
There are no components of this material with known CAS numbers which are on the Extremely Hazardous Substances (EHS) list.

Section 311 & 312
Based on available information, this material contains the following components which are classified as the following health and/or physical hazards according to Section 311 & 312:
(2-Methoxymethylethoxy) Propanol 34590-94-8 (Flammability)

Section 313
This material does not contain any chemical components subject to Section 313 reporting requirements.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA)
This material does not contain any components subject to the reporting requirements of CERCLA.

OTHER REGULATORY INFORMATION
Canadian Environmental Protection Act (CEPA). All ingredients are listed on the **DSL (Domestic Substance List).**

STATE REGULATIONS

PENNSYLVANIA RIGHT-TO-KNOW HAZARDOUS SUBSTANCES LIST

PA Hazardous Substances present at levels greater than 1%:
(2-Methoxymethylethoxy) Propanol 34590-94-8

Section 16. OTHER INFORMATION

NFPA Rating	WHMIS Rating
Health 0 Flammability 0 Reactivity 0	D2B

ADDITIONAL INFORMATION

Preparation Date/Revision Number.....10/01/07

For further information, see National Foam Product Data Sheet for Universal Plus 3% / 6%.

The information contained herein is furnished without warranty either expressed or implied. This data sheet is not a part of any contract of sale. The information contained herein is believed to be correct or is obtained from sources believed to be generally reliable. However, it is the responsibility of the user of these materials to investigate, understand and comply with federal, state and local guidelines and procedures for safe handling and use of these materials. National Foam, Inc. shall not be liable for any loss or damage arising directly or indirectly from the use of this product and National Foam, Inc. assumes no obligation or liabilities for reliance on the information contained herein or omissions herefrom.

October 1, 2007